



Spring 00 Volume XVI Issue 1

Cleared for Public Release - Distribution Unlimited

SURVIAC Bulletin

Survivability/Vulnerability Information Analysis Center

SURVIAC is a U.S. Department of Defense Information Analysis Center (IAC) sponsored by the Defense Information Systems Agency (DISA), Defense Technical Information Center (DTIC).

Aircraft Computerized Wiring Maintenance Aid Tested at ABDR Exercise Serene Robins 00-02



SSgt. Kenneth Dockery, 653 CLSS Training Flight

A crackle comes over the radio “Code 5, battle damage left wing.” The pilot struggles to get his crippled F-15 aircraft on the ground safely. The aircraft slowly descends towards a runway crowded with emergency vehicles. The pilot’s skill and training are tested to the limit as he slowly touches down and comes to a halt amid flashing lights and sirens.

This scene is part of a recent exercise held at Robins AFB, Georgia. Members of the 653 CLSS tested their unique capabilities in Battle Damage Repair. The simulated battle damage was inflicted by a frag simulator that employs a C-4 explosive charge that propels a wax disc embedded with screws, nuts and bolts into the aircraft skin, sub-structure and underlying sub-systems.

This particular damage inflicted a 10” X 8” hole in the lower wing surface and extended through the wing to the upper wing surface. The sub-structure and sub-system damage included severed ribs and a damaged wire bundle. After a thorough assessment it was determined that the damaged wire bundle would be the driving factor in returning the F-15 back into the ongoing battle. Under normal conditions troubleshooting the wires would take anywhere from 24 to 48 hours. However, SrA Bobby Lynch had an ace in the hole this time. He used the F-15 Wiring Maintenance Aid. This system was developed to give the technician access to a computerized database of the entire aircraft wiring system. Rapid access to tail-number specific wiring data is provided to allow the timely and efficient repair of wire damage. Data presented include wire function, gauge, a brief wire description, identification of the connector

and pin of each end of the wire and the access door for each, as well as the LRU associated with the wire. The wiring maintenance aid operates on any COTS laptop PC. This system used in conjunction with the wiring tech orders allowed SrA Lynch to complete the troubleshooting process in a 12-hour period. He accomplished this while being subjected to airfield attacks involving nerve agent and conventional weapons.

The computerized wiring maintenance aid can also be used in more traditional maintenance operations. In this mode, the technician is presented a menu listing the various aircraft systems and asked to select the one which is experiencing a problem. Upon selection of a system, the next menu presents a list of symptoms



SrA Bobby Lynch troubleshoots a damaged wire bundle during Serene Robins 00-02. Lynch, a member of a 14 person F-15 ABDR team, used a computerized wire program to speed the repairs to the damaged aircraft.

Report Documentation Page				Form Approved OMB No. 0704-0188	
Public reporting burden for the collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to a penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.					
1. REPORT DATE 2000		2. REPORT TYPE		3. DATES COVERED 00-00-2000 to 00-00-2000	
4. TITLE AND SUBTITLE SURVIAC Bulletin: Aircraft Computerized Wiring Maintenance Aid Tested at ABDR Exercise Serene Robins 00-02, Volume 16, Issue 1				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S)				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) JAS Program Office,200 12th Street South,Crystal Gateway #4, Suite 1103,Arlington,VA,22202				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release; distribution unlimited					
13. SUPPLEMENTARY NOTES					
14. ABSTRACT					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT Same as Report (SAR)	18. NUMBER OF PAGES 16	19a. NAME OF RESPONSIBLE PERSON
a. REPORT unclassified	b. ABSTRACT unclassified	c. THIS PAGE unclassified			

In This Issue:

Cover Story: Aircraft Computerized Wiring Maintenance Aid Tested at ABDR Exercise Serene Robins 00-02	1
SURVIAC POCs	2
2000 IAC Awareness Conference Held	3
Survivability Analysis Workshop	5
Model Spotlight: WINFIRE 2.0	6
Model News:	8
JMUM 2000 Meeting Held	9
JIMM 2.0 Available	9
Product Availability	10
Model Availability	11
DTIC Annual Users Meeting and Training Conference	12
SURVIAC Survivability Analysis Workshop 2000 Registration Form	14
Calendar of Events	15
Information Request	16



SURVIAC Bulletin Vol XVI Issue 1

SURVIAC, a DoD Information Analysis Center (IAC), is administratively managed by the Defense Information Systems Agency (DISA), Defense Technical Information Center (DTIC), under the DoD IAC Program. SURVIAC is sponsored by the Joint Technical Coordinating Groups on Aircraft Survivability (JTICG/AS) and for Munitions Effectiveness (JTICG/ME). SURVIAC is operated by Booz•Allen & Hamilton Inc. The Contracting Officers Technical Representative (COTR) for the Center is Mr. Martin L. Lentz, 46 OG/OGM/OL-AC, 2700 D Street, Bldg. 22B, Wright-Patterson AFB Ohio 45433-7605. He may be reached at DSN 785-6302 or (937) 255-6302.

Inquiries about SURVIAC's capabilities, products and services, or comments regarding this publication may be addressed to:

AFRL/VACS/SURVIAC, Building 45
2130 Eighth Street, Suite 1
Wright-Patterson AFB, Ohio 45433-7542
Com: (937) 255-4840, DSN: 785-4840
Fax: (937) 255-9673
E-Mail: surviac@wpafb.af.mil
URL: <http://iac.dtic.mil/surviac>

SURVIAC Points of Contact

Com: (937) 255-4840,
DSN: 785-4840
Fax: (937) 255-9673

Kevin Crosthwaite
SURVIAC Director
E-mail: crosthwaite_kevin@bah.com

Donna Egner
SURVIAC Deputy Director
E-mail: degner@bah.com

Gerald Bennett
Survivability Analyst
E-mail: gbennett@bah.com

Jon Carroll
Research Assistant
E-mail: jcarroll@bah.com

Susan Green
Administrative Services Manager
E-mail: green_sue@bah.com

Geri Bowling
Model Administrator
E-mail: gbowling@bah.com

Linda Hamilton
Model Manager
Com: (937) 431-2746
E-mail: hamilton_linda@bah.com

Mike Bennett
Model Manager
Com: (937) 431-2707
E-mail: bennett_michael@bah.com

Theron Niekamp
Computer Services
E-mail: tniekamp@bah.com

Michael Shanley
Computer Services
E-mail: mshanley@bah.com

Jason Burden
Computer Services
E-mail: jburden@bah.com

Linda Ryan
SURVIAC Bulletin
E-mail: liryan@bah.com

Visit our web site !
<http://iac.dtic.mil/surviac>

E-mail SURVIAC!
surviac@wpafb.af.mil

2000 IAC Awareness Conference Highlights

The Defense Technical Information Center (DTIC) Information Analysis Center (IAC) Program Management Office sponsored an IAC Awareness Conference on May 16, 2000 at the Hope Hotel, Wright-Patterson Air Force Base, Dayton, Ohio. The Survivability Vulnerability Information Analysis Center (SURVIAC) and Human Systems Information Analysis Center (HSIAC) jointly hosted the event. The theme of the conference was “Key Challenges” that need to be conquered to enable us to meet Vision 2010. The meeting was open to all Department of Defense (DoD) and associated industry personnel. This meeting promoted IAC Awareness to the Wright-Patterson AFB community with an emphasis on the needs of the warfighter.

attendance of nearly 150 individuals were DoD program managers, researchers, analysts, information providers, and information users. The conference addressed the information needs of the warfighter, along with the current and future information technology initiatives that will be needed to support those needs in the new millennium. The impact of changes in the policies, procedures, and technologies of information now and in the future and the subsequent impact on DoD were also addressed. Many of the DoD IACs had exhibits in the display area highlighting their capabilities, products, and services.

The senior level participants included Mr. James O'Bryon of DDOT&E/LFT who served as the meeting's Keynote speaker. Mr. O'Bryon addressed the challenges to

the IAC program in his speech and covered the primary mission of the IACs and their key features. He also discussed what the IACs are not, as he underscored their role as active centers of technical excellence.

Dr. Hendrick Ruck of AFRL presented an overview of the Air Force Research Laboratory. He reviewed the reporting organization and



Kurt Mulholm describes the IAC mission.

The objective of this conference was to explore the strategic direction and the resulting requirements of information technology and services necessary to support the DoD. The agenda featured senior-level participants and provided an opportunity to discuss and share valuable insights between Research and Development and the warfighter community. Included in the

the various locations and laboratories around the country. He also addressed the affordability of science and technology and the vision for the lab. He closed his speech with the challenge that the laboratory faces with its personnel and demographics.

IAC Awareness Conference continued on page 4

Dr. Jay Davis of the Defense Threat Reduction Agency (DTRA), discussed the DTRA organization and role. He described the scenarios they have developed and studied to assess the impact of civil use of Weapons of Mass Destruction.

Colonel Bruce Thieman of AFRL, described his role and position as the Chief Information Officer for AFRL. He focused on the aspects of knowledge management, and that it must be shared geographically through the lab locations and shared between scientists.

General Tom Moorman, USAF (Retired) spoke on the Air Force vision and the evolution of “global reach, global power” to “global engagement” and now the need to add “global vigilance”. He discussed the integration of space systems into current operations and tactics.

Brig. General Gregory Premo of DISA, presented a briefing on “Networks Today and Tomorrow.” He discussed future plans for upgrading specific systems such as NIPRNET and SIPRNET. He described the future cost strategies that were evolving



Attendees reviewed numerous IAC displays.

as the new backbone is being built.

Dr. Ken Boff of AFRL spoke on the overload of information. He discussed the various technology transition models, as well as reviewed the challenge of difficulties of innovation and the prospects of IACs to overcome them.

Col Greg Frick provided a “DoD Perspective on Infrastructure and Information Assurance.” He discussed their role of advocacy for Information Assurance awareness, both with US Agencies and Commands as well as foreign allies to heighten awareness about this real threat.

ABDR Exercise continued from page 1

(problems) associated with that system. The technician selects the symptom being reported and the maintenance aid presents the connectors and wiring data associated with the LRU that could be causing the symptom. After hardware is eliminated as the source of the problem, wire troubleshooting can begin.

“I wish I had this system on the flightline,” said SrA Lynch after the exercise came to an end. “I hope this system is brought online soon. It would be a drastic improvement to the current method of using several

tech orders and many man hours to accomplish the job.”

Efforts are underway to secure additional funding for the project that was developed for the Air Force Research Laboratory in the early 1990’s. This funding would be used to expand the program to include different aircraft and to enhance the existing program to a more graphically oriented format.

For further information, please contact SSgt Dockery at 912-926-9574 or DSN 468-9574.

SURVIAC Survivability Analysis Workshop 2000 to be Held 25-29 September

SURVIAC will once again host a Survivability Analysis Workshop on 25-29 September 2000 at Wright-Patterson Air Force Base, Ohio. This workshop will focus on the needs of the analyst as well as “how-to-do-it” analysis, stringing together a variety of models, data sources, and analytic judgement into a comprehensive survivability analysis.



Prof. Robert E. Ball

For the first time, this workshop will feature Professor Robert E. Ball. Professor Ball literally wrote the book on aircraft survivability. He has long taught a separate short course on aircraft survivability at the Naval

Postgraduate School in Monterey, California. In his course he covers the fundamentals of survivability theory, threat effects, and a variety of survivability design techniques - both to reduce aircraft susceptibility - or probability of getting hit and to reduce aircraft vulnerability - or the probability of being shot down if the aircraft becomes hit. In the past, the SURVIAC workshop attempted to complement Professor Ball's course by focusing primarily on the specifics of models typically used in survivability analysis. In September for the first time we will combine key features of both courses.

On the first day of the workshop Professor Ball will present his excellent introduction to the aircraft survivability discipline. He will also cover mission, threats and threat effects, and preview the survivability assessment. On later days the workshop will progress through all elements of a sample survivability analysis. We will discuss each part of a comprehensive survivability analy-

sis including vulnerability, susceptibility, engagement, mission, and campaign analysis. At each step in the analysis we will present information on the typical models used, their respective assumptions, limitations, and typical results. We will discuss available data sources and resources, and agencies to assist you with further training as needed. We will point out common problems that you may encounter. We will also highlight tricks of the trade or small helper programs to assist you in reformatting data, graphically display data and results, and to maintain a sanity check as you progress through a typical analysis.

Who should attend this workshop? Mid-level managers from government and industry who supervise studies entailing survivability analysis techniques; project and task managers who need a better understanding of what analysis capabilities are available; and Government and industry engineers, analysts, and programmers who furnish simulation input will find this course helpful in future decision processes.

This workshop is open to U.S. Government organizations and their contractors. There is a registration fee of \$400 for all attendees. Payment must accompany registration. The fee can be paid by Purchase Order, check, and credit card (Visa, MasterCard, and American Express only). Government attendees may submit DD Form 1556. Hotel arrangements and related matters are the responsibility of each registrant. A listing of local hotels and area maps will be sent as part of your confirmation package.

The Survivability Analysis Workshop is classified. A Registration/Security Clearance form is included in this bulletin on page 14. Deadline for registration is 15 September 2000.

Survivability Analysis Workshop continued on page 12

Workshop

WINFIRE 2.0

Dry bay fires have historically been credited with causing the majority of combat aircraft losses. As a result, they are often the focus of live fire tests, vulnerability assessment studies, and aircraft design efforts. To assist in these diverse efforts, the WINFIRE model was specifically designed as a tool to examine fire ignition and sustainment over a wide range of conditions. The results can then be applied directly for live fire test predictions, test planning, post-test analyses, vulnerability estimates (i.e., probability of kill given a hit, Pk/h), and design guidelines. The simulation primarily relies on basic physical principles, which are supplemented by empirical data as needed. Although WINFIRE was designed principally for aircraft studies, efforts are underway to adapt the tool's methodology for use in ground vehicle and ship applications.

WINFIRE simulates the events occurring during the penetration of a single threat through an aircraft dry bay and into a liquid-filled container, either a tank or a line. The model's primary output is the probability of fluid ignition and fire sustainment and a time history of temperature and pressure given ignition within three regions of the dry bay. The model is PC-based and queries the user for specific information about the conditions to be analyzed. No off-line computations by the user are required; the model contains pre-determined threat, fluid, and target material databases encompassing a wide range of conditions of interest.

WINFIRE has been developed to allow the user to examine a broad range of threats, fluids, target configurations, environmental conditions, and impact conditions:

Threat Type: WINFIRE 2.0 simulates ignition by either a ballistic threat or an electrical spark. Three types of ballistic threats can be simulated: armor-piercing incendi-

ary (API) projectiles, warhead fragments, and high-explosive incendiary (HEI) projectiles. Four Soviet API projectiles (7.62mm, 12.7mm, 14.5mm, or 23mm) can be simulated and are contained in the WINFIRE database. In addition, four types of incendiary functions (complete, partial, slow burn, or delayed) can be evaluated. For fragment threats, any fragment weight of interest can be specified. Three Soviet HEI projectiles (14.5mm, 23mm, or 30mm) can be evaluated. For the 23mm, either the A-23 or MG-25 fuze can be selected.

Flammable Liquids: The user can select one of three fuels (JP-4, JP-5, or JP-8) or one of two military hydraulic fluids (MIL-H-5606 or MIL-H-83282).

Liquid Container Description: WINFIRE 2.0 can simulate a fuel tank, a fuel line, or a hydraulic fluid line. For each container type, the model requires various descriptors such as fuel level and volume, tank material, and line diameter and pressure.

Dry Bay Description: WINFIRE 2.0 requires the user to describe the dry bay including dimensions; material; ventilation air velocity and hole size; and the number, size, and location of structural barriers present.

Environmental Conditions: Environmental conditions required include fluid and ambient air temperature, ullage pressure, aircraft velocity, and encounter altitude.

Impact Conditions: WINFIRE requires a description of the impact conditions including threat impact velocity, threat approach direction, and dry bay surface impact location.

WINFIRE developments are continuing with the addition of a 3-D simulation of buoyancy, diffusion, and viscous effects. This Flow Field version will employ an innovative dual-grid system to minimize run times. One grid simulates convection that operates over long-distance scales,

Figure 1. WINFIRE Flow Field Cross-Sectional Frontal View, Fuel Vapor and Temperature Gradients (6 inches from Front Face, 0.7 sec. After Ignition)

Figure 2. WINFIRE Flow Field Cross-Sectional Frontal View, Fuel Vapor and Temperature Gradients (6 inches from Front Face, 2.0 sec. After Ignition)

Figure 3. WINFIRE Flow Field Cross-Sectional Side View, Fuel Vapor and Temperature Gradients (Along Longitudinal Axis about Hole, 0.4 sec. After Ignition)

Figure 4. WINFIRE Flow Field Horizontal Cross-Sectional View, Fuel Vapor and Temperature Gradients (Just Above Floor, 2.8 sec. After Ignition)

while the second grid simulates diffusion over much smaller distances. The conservation equations of mass, species, and energy are performed in the diffusion grid, and convective effects are superimposed into the diffusion grid from the convection grid.

While the new Flow Field version of WINFIRE will enhance the model's fidelity, the increased complexity precludes simple tabular output from describing the temperature and mass flows seen within the dry bay over time. As a result, Figures 1 through 4 present notional results from the Flow Field version of WINFIRE utilizing visualization techniques. Figures 1 and 2 show both the fuel vapor (upper portion of the figure) and temperature (lower portion) gradients within the dry bay in a plane

approximately six inches from the front face at 0.7 and 2.0 seconds, respectively, after ignition of the liquid spray. The fuel vapor seen in the upper portion of Figure 1 is the remnant from the initial fuel spray. In Figure 2, fuel vapors are observed in both the upper portion of the bay and in two regions of the lower portion. The vapor in the upper portion is still leftover from the initial fuel spray, while the two lower regions of vapor are a result of vaporization of the fuel pool on the floor of the bay. The lack of any fuel vapor in the center floor area is a result of the combustion taking place at this location.

The transition from spray ignition to flaming combustion can be seen from the temperature gradients in the lower portion of Figures 1 and 2. The hot gases resulting

Upcoming Model Meetings

The following is a list of upcoming model meetings. For more information on these meetings, please contact Mr. Paul Jeng, Booz·Allen & Hamilton Inc., Com: (937) 431-2712 or by E-mail: surviacmodels@bah.com. Also, visit our web site at: <http://iac.dtic.mil/surviac>.

Joint Interim Mission Model (JIMM) Users & Configuration Control Board

14-17 November 2000

Eglin AFB, Florida

BRAWLER& ESAMS Concurrent Meetings

28-30 November 2000

Nellis AFB, Nevada

BAR

5-7 December 2000

NGIC, Charlottesville, Virginia

JMUM 2001

11-15 June 2001

USAF Academy, Colorado Springs, Colorado

WINFIRE continued from page 6

from the spray ignition appear in the center of the bay as a white zone at the core of the event. The flaming combustion (i.e., fire) appears as a red-to-white zone surrounding the core. Additional flaming combustion is visible at the bottom of the bay around the airflow entering the damage hole and at the edges of the fuel vapor. The fire is seen spreading out from the center where it initiated.

Figure 3 shows a cross section of the dry bay across the longitudinal axis around the location of the damage hole. The presence of cold air convected through the damage hole (lower left-hand corner) where associated combustion is occurring is clearly seen. Lastly, Figure 4 shows a cross section of the fire parallel to and just above the floor. From this figure, the vaporizing fuel at the center of bay and the spread of the fire toward the edges of the bay can be observed.

WINFIRE 2.0 beta test version is currently available from SURVIAC, and the new Flow Field version should be available later this year. Included on the distribution CD are the User's Manual and the WINFIRE Beta test plan in Adobe Acrobat format (PDF). The Analyst's manual is available in hard copy. The WINFIRE GUI will currently work on Windows 95/98, Windows NT 3.51, and Windows 4.0, while the standalone version (DOS interface) will work on these operating systems as well as Windows 2000.

Order requests can be directed to Sue Green at SURVIAC, Com (937) 255 4840, DSN 785-4840, e-mail: green_sue@bah.com. Technical questions on the model should be directed to Andrew Pascal at (505) 281-7522 or apenthalpy@aol.com. The Model Manager is Martin Lentz of 46 Test Wing, Com: (937) 255-6302, ext. 241, DSN:785-6302, ext. 241 E-mail: martin.lentz@wpafb.af.mil.

JMUM 2000 Meeting Held

The JTCG/AS Model User Meeting (JMUM) 2000 was held on 14-16 June 2000 at the United States Air Force Academy in Colorado Springs, Colorado. JMUM 2000 was the fifth combined users meeting that SURVIAC has executed and JTCG/AS has funded. The models included in the JMUM are BLUEMAX, ESAMS, RAD-GUNS, FASTGEN/COVART, AJEM, JVIEW, MIL AAPSEM II, BRAWLER, ALARM and DIME. 126 attendees participated in this year's meeting.

JMUM included a general session. The session started with a JTCG/AS briefing and continued with the benefits of modeling and simulation from the Defense Modeling and Simulation Office, DMSO. The Missile & Space Intelligence Center, MSIC presented a surface-to-air intelligence brief. This is MSIC's fifth year supporting this forum. Technical briefs on different modeling tools and capabilities were also presented.

Following the general session, breakout sessions for the models were held. Model specific topics were discussed during each of these sessions. Status of the models was presented and future schedules were discussed. The breakout sessions included formal presentations and working forums for the users. The working groups also included Configuration Control Board meetings. Model deficiencies were discussed and voted on for incorporation into the model. Having the users present during the CCB discussions has proven to be invaluable. The user can provide information that would otherwise not be available for discussion.

JMUM is an excellent networking event for the SURVIAC models users. JMUM 2001 is scheduled for 12-15 June 2001 at the United States Air Force Academy in Colorado Springs, Colorado. Please mark you calendars and plan on attending!

JIMM 2.0 Available



The Joint Interim Mission Model (JIMM) Program Office, ESC/CXCM, at Hanscom AFB

announces the release of JIMM Version 2.0. The software is available to all JIMM users with signed User Agreements. It can be downloaded from the JIMM web site (<http://www.wg.hanscom.af.mil/jimmw/>) or a copy may be requested on CD. Please direct all inquiries for web site access or User Agreements to Mr. Robert Kurker, the JIMM Model Manager. He can be reached at (781) 377-7284 or by email at Robert.Kurker@hanscom.af.mil.

JIMM is a merger of the Simulated Warfare Environment Generator (SWEG) and Suppressor models. Several SWEG users (including the Joint Strike Fighter (JSF) Program Office) have transitioned to JIMM since its Oct 99 release. As Suppressor capabilities continue to be added as part of on-going JIMM development efforts, it is a goal that Suppressor users will also eventually transition to JIMM. Another goal is for JIMM to be used as an initial prototype for a Next Generation Mission Model (NGMM). JIMM is primarily used to perform both constructive and virtual mission-level modeling, but is also a mission simulation tool capable of supporting the full acquisition life-cycle requirements (training, test, etc.)

JIMM Users & Configuration Control Board Meeting

14-17 November 2000

Eglin AFB, Florida

SURVIAC Product Availability

SURVIAC is a U.S. Department of Defense Information Analysis Center (IAC) sponsored by the Defense Technical Information Center (DTIC)

Products

Product	Classification	Reproduction & Handling Fee
A Critical Review of Graphite Epoxy Laser Damage Studies	SECRET	\$ 50.00
A Summary of Aerospace Vehicle Computerized Geometric Descriptions for Vulnerability Analyses	Unclassified	\$100.00 (Free to Gov't)
Advanced Materials for Enhanced Survivability	SECRET	\$100.00
Aircraft Engine Analysts Reference Manuals (ARM) - 9 Volumes	SECRET	\$400.00/Per Set
Aircraft Fuel System Fire and Explosion Suppression Design Guide	Unclassified	\$150.00/3 Volumes
'Aircraft Survivability' Video	Unclassified	\$ 50.00 or 30-Day Loan
Alternatives For Halon 1301 In Army Ground Vehicle Firefighting Systems	Unclassified	\$250.00
An Overview of Laser-Induced Eye Effects	SECRET	\$150.00
An Overview of Laser Technology and Applications	Unclassified	\$ 50.00
Army Survivability Information Resource Database	Unclassified	\$200.00
'Battle Damage Repair of Composite Structures' Video	Unclassified	\$ 75.00
Collection of Vulnerability Test Results for Typical Aircraft Systems and Components	CONFIDENTIAL	\$150.00
Comparative Close Air Support Vulnerability Assessment Study - Executive Summary	SECRET	None (Gov't. Only)
Compendium of References for Nonnuclear Aircraft Survivability (A Supplement to MIL-HDBK-336)	Unclassified	\$150.00
Component Vulnerability (Pd/h) Workshop Component Pd/h Handbook w/addendum	SECRET	\$200.00 (Free to Gov't)
Countermeasures Handbook for Aircraft Survivability (3 Volumes)	SECRET	\$200.00 (Free to Gov't)
Critical Review and Technology Assessment (CRTA) for Soldier Survivability (SSv)	Unclassified	\$ 50.00
'Designing for Survivability' Video	Unclassified	30-Day Loan
DOD Directive 5000.1 and DOD Instruction 5000.2/5000.2M Survivability Excerpts	Unclassified	\$ 50.00 (Free to Gov't)
Gas Explosion Suppression Agent Investigation	Unclassified	\$200.00
Joint Live Fire/Live Fire Test Program Catalogue, Version 3.1	Unclassified	\$ 95.00
Joint Live Fire Test Program Aircraft Systems FY86, 87, 88 and FY88-90 Videos	Unclassified	\$ 50.00/Each
National MANPADS Workshop: A Vulnerability Perspective Proceedings 2 Volumes	SECRET	\$200.00
Penetration Characteristics of Advanced Engine Materials	Unclassified	\$100.00
Proceedings of the Eighth DOD Conference on DEW Vulnerability, Survivability and Effects - 2 Volumes	SECRET	\$125.00/Per Set
RADGUNS 1.8 Parametric Study	SECRET	\$100.00 (Free to Gov't)
Ship Survivability Overview	Unclassified	\$ 50.00
'SURVIAC - A Capabilities Overview' Video	Unclassified	30-Day Loan
Survivability Systems Master Plan	Unclassified	\$ 50.00 (Free to Gov't)
Testing of Aircraft or Aircraft Surrogates with On-Board Munitions	Unclassified	\$100.00
"Threat Effects in Aircraft Combat Survivability" Video	Unclassified	\$150.00 or 60-Day Loan
Ullage Explosion Hazard State-of-the-Art Report (SOAR)	Unclassified	\$ 50.00
Unmanned Aerial Vehicles Survivability Compendium—Interim Report Database	Unclassified	\$200.00
U.S. Air Force Surface-To-Air Engagements During Operation Desert Storm	SECRET	\$100.00 (Free to Gov't)
Vulnerability Reduction Design Guide for Ground Systems in a Conventional Combat Environment	Unclassified	\$200.00

For further information on how to obtain these products and how to establish need-to-know certification, please contact SURVIAC at (937) 255-4840 or DSN 785-4840. Requests from non-U.S. agencies must be forwarded to their country's Embassy in Washington DC, Attn: Air Attache's Office.



SURVIAC Model Availability

SURVIAC is a U.S. Department of Defense Information Analysis Center (IAC) sponsored by the Defense Technical Information Center (DTIC)

Model	Classification	Reproduction & Handling Fee	
		Model	Documentation
MIL-AASPEM — Man-in-the-Loop Air-To-Air System Performance Evaluation Model	Unclassified	\$500.00	\$ 80.00 ⁺
AIRADE—Airborne Radar Detection Model	Unclassified	\$500.00	\$ 36.00
ALARM—Advanced Low Altitude Radar Model	Unclassified	\$500.00	\$ 60.50 ⁺
BLUEMAX IV—Variable Airspeed Flight Path Generator	Unclassified	\$500.00	\$ 15.00 ⁺
BRAWLER—Air-To-Air Combat Simulation	SECRET	\$500.00	\$231.50 ⁺
BRL-CAD—Ballistic Research Laboratory Computer-Aided Design Package*	Unclassified	\$500.00	N/A
COVART—Computation of Vulnerable Area and Repair Time	Unclassified	\$500.00	\$ 37.00
DIME—Digital Integrated Modeling Environment	Unclassified	\$500.00	\$ 63.00
ESAMS—Enhanced Surface-To-Air Missile Simulation	SECRET	\$500.00	\$295.50 ⁺
FASTGEN—Fast Shotline Generator	Unclassified	\$500.00	\$ 52.00
IVIEW 2000—Graphical User Interface for Output Simulation	Unclassified	\$100.00	+
JSEM - Joint Service Endgame Model	Unclassified	\$500.00	TBA*
LELAWS—Low Energy Laser Weapons Simulation	Unclassified	\$500.00	\$ 31.50
RADGUNS—Radar-Directed Gun System Simulation	SECRET	\$500.00	\$ 69.50 ⁺
TRAP—Trajectory Analysis Program	Unclassified	\$500.00	\$256.00
TRACES—Terrain/Rotorcraft Air Combat Evaluation Simulation	Unclassified	\$500.00	\$127.00

* For more information regarding BRL-CAD or JSEM documentation, contact Mr. Bob Strausser at the SURVIAC Aberdeen Satellite Office, (410) 273-7722.

+ Documentation included with code on CD version of Model at no charge



For further information on how to obtain these models and how to establish need-to-know certification, please contact SURVIAC at (937) 255-4840 or DSN 785-4840. Requests from non-U.S. agencies must be forwarded to their country's Embassy in Washington DC, Attn: Air Attache's Office.

Models

DTIC 2000 Annual Users Meeting and Training Conference

The Defense Technical Information Center (DTIC) will host DTIC 2000, its Annual Users Meeting and Training Conference, from 6-9 November 2000 at the DoubleTree Hotel Rockville, Maryland.

This year's theme, "Information Solutions for the 21st Century," reflects DTIC's primary objective: to assist its customer community in meeting tomorrow's challenges by providing the most relevant information in the most appropriate format as quickly as possible.

DTIC 2000 provides a unique opportunity for attendees to explore in detail new developments not only at DTIC, but throughout the federal technical information network. As in past years, the conference will feature a number of presentations and sessions that focus on the most current issues relative to the research, development and acquisition communities.

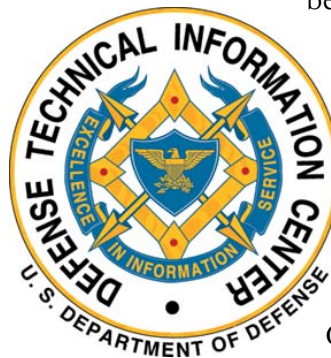
These sessions are designed to acquaint the participants with the latest policy and

operational developments, and will provide practical details on valuable and diverse domestic and foreign information resources. They will also address security issues, the World Wide Web, copyright laws and the storage and dissemination of electronic documents.

"Information Solutions for the 21st Century" will provide timely, accurate information which will enable users to better meet the challenges of the future. It also promises to provide the tools needed to expand participants' horizons to meet these challenges.

For more information, please contact Ms. Julia Foscue, DTIC 2000 Conference Coordinator, or access the DTIC Homepage on the World Wide Web.

Comm: (703) 767-8236
Email: jfoscue@dtic.mil
DTIC Homepage:
<http://www.dtic.mil/dtic/annualconf>



Survivability Analysis Workshop continued from page 5

Refunds for cancellation will not be made after 22 September 2000. Substitutions may be made prior to the start of the workshop if proper clearance information has been received.

For more information on this workshop or if you would like to be a speaker, please contact Mrs. Susan Green
Com: (937) 255-4840, DSN 785-4840
E-mail to green_sue@bah.com



SURVIAC Survivability Analysis Workshop

25-29 September 2000
Wright-Patterson AFB, Ohio

Featuring the Distinguished
Professor Robert Ball

This workshop will provide an in-depth look at a comprehensive set of survivability analysis tools. Experienced analysts will be given an opportunity to discuss problems, concerns, and model limitations with other users and developers. Novice analysts will be introduced to the tools and techniques of the survivability analysis process.

Who Should Attend this Workshop?

Mid-level managers from government and industry who supervise studies entailing survivability analysis techniques, tools and capabilities.

Project and task managers who need a better understanding of what analysis capabilities are available, and how modeling can provide dependable decision-making information.

Government and industry engineers, analysts, and programmers who furnish simulation input, operate analysis tools, and make recommendations based on modeling and analysis results

For more information concerning this workshop, please contact:
Mrs. Susan Green

Com: (937) 255-4840, DSN: 785-4840, E-mail: green_sue@bah.com

September

AIAA Space 2000 Conference and Exposition

September 19-21, 2000

Long Beach, California

POC: American Institute of Aeronautics and Astronautics

Com: (703) 264-7500, 1-800-NEW-AIAA, Fax: (703) 264-7551

SURVIAC Survivability Analysis Workshop

September 25-29, 2000

Wright-Patterson AFB, Ohio

POC: Susan Green, SURVIAC

Com: (937) 255-4840, DSN: 785-4840, E-mail: green_sue@bah.com

October

71st Shock & Vibration Conference

October 23-27, 2000

Arlington, Virginia

POC: Marcy Birch, SAVIAC

Com: (703) 289-5133, E-mail: birch_marcy@bah.com

9th Helicopter Military Operations Technology (HELMOT) National Specialists Meeting

October 31 - November 2, 2000

Williamsburg, Virginia

POC: Richard Stoessner

Com: (757) 874-8522

November

DTIC 2000 "Information Solutions for the 21st Century" Annual Users Meeting and Training Conference

November 6-9, 2000

Rockville, Maryland

POC: Ms. Julia Foscue, DTIC 2000 Conference Coordinator

Com: (703) 767-8236, E-mail: jfoscue@dtic.mil, <http://www.dtic.mil>

10th Annual International Aircraft Fire Protection/Mishap Investigation Course

November 13-17, 2000

Dayton, Ohio

POC: AFB Associates, Mr. Robert Clodfelter, Com: (937) 435-8778

<http://members.aol.com/afp1fire/www.htm>

NDIA Aircraft Survivability 2000-Science and Technology Initiatives

November 14-16, 2000

Naval Postgraduate School, Monterey, California

POC :Ms. Angie DeKlein, NDIA, Com: (703) 247-2599 E-Mail: adeklein@ndia.org

Joint Interim Mission Model (JIMM) Users & Configuration Control Board

November 14-17, 2000

Eglin AFB, Florida

POC: Mr. Paul Jeng, SURVIAC, Com: (937) 431-2712, E-Mail: SURVIACmodels@bah.com

BRAWLER and ESAMS Concurrent Meetings

November 28-30, 2000

Nellis AFB Conference Center, Las Vegas, Nevada

POC: Mr. Paul Jeng, SURVIAC, Com: (937) 431-2712, E-Mail: SURVIACmodels@bah.com

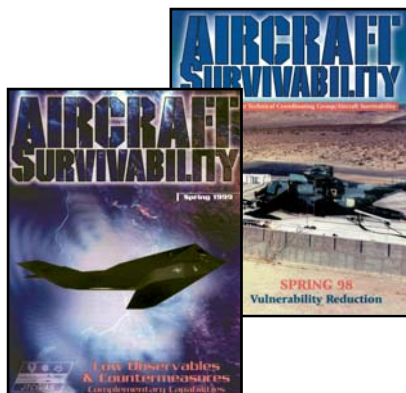
Bluemax, Alarm, Radguns (BAR) Meeting

December 5-7, 2000

National Ground Intelligence Center (NGIC), Charlottesville, Virginia

POC: Mr. Paul Jeng, SURVIAC, Com: (937) 431-2712, E-Mail: SURVIACmodels@bah.com

**Subscribe
to the JTCG/AS
Aircraft Survivability
Newsletter**



**Contact Linda Ryan
SURVIAC
Com: (937) 255-4840
DSN: 785-4840
E-mail: liryan@bah.com**

SURVIAC Distribution/Information Request

- ☐ Change the Distribution Information as Shown Below
- ☐ Add My Organization to the SURVIAC Bulletin Distribution List
- ☐ Add My Organization to the JTCG/AS Aircraft Survivability Newsletter
- ☐ Request SURVIAC Technical Area Task Information (Government)
- ☐ Request SURVIAC Subscription Plan Information Package (Industry)
- ☐ Request SURVIAC Product Guide ☐ Request SURVIAC Model Guide

NAME: _____

TITLE _____

COMPANY/ORG _____

DIVISION _____

ADDRESS _____

CITY/STATE/ZIP _____

COUNTRY _____

DSN _____

COM _____

FAX _____

E-mail _____

SERVICE : ☐ USA ☐ USAF ☐ USN ☐ USMC ☐ DoD ☐ Contractor

Return to: Linda Ryan, AFRL/VACS/SURVIAC, Bldg. 45,
2130 Eighth St., Ste. 1,
Wright-Patterson AFB, Ohio 45433-7542
Com: (937) 255-4840, DSN: 785-4840, FAX: (937) 255-9673
E-mail: liryan@bah.com

For further information on how to obtain products and how to establish need-to-know certification, please contact SURVIAC at (937) 255-4840, FAX (937) 255-9673. Requests from non-U.S. agencies must be forwarded to their country's Embassy in Washington, D.C., Attn: Air Attache's Office.

SURVIAC

AFRL/VACS/SURVIAC, Bldg. 45
2130 Eighth Street, Ste. 1
Wright-Patterson AFB, OH 45433-7542

PRSRT STD
US POSTAGE PAID
DAYTON OH
PERMIT NO 1161